

Employment

- University of Birmingham
2009 – 2010
- Project Manager for Hydrogen Fuel Cell Vehicle Demonstration***
Post doctoral research position overseeing the demonstration and scientific project surrounding the only fleet of fuel cell vehicles in the UK. Five Microcab vehicles were operated for two years on the Birmingham campus as passenger and light delivery vehicles (e.g. with Royal Mail), and have served as a focal point of several exhibitions, talks and activity days around the UK.
- By writing custom data analysis software I assessed the performance, limitations, energy efficiency and CO₂ reductions that these cutting-edge vehicles could achieve, and devised a program of design improvements to double their initial fuel economy. This information has been disseminated in academic papers, conference presentations and at several public events. Routine duties also included keeping the fleet operational (fault diagnosis, repairs and maintenance), organising demonstration activities and ensuring user satisfaction.
- Wooler Heating
2009 –
- Managing Director of Energy Consultancy***
Founded a sustainable energy company focussed on making low carbon heating solutions available to lower income households. The company is conducting small-scale trials of various technologies to prove their effectiveness before raising awareness among the public and offering streamlined and simplified installation and financing. Other areas of work include consultancy on business plans (e.g. for Enthor Energy) and producing an action strategy for creating the UK's first 'low-carbon' iron foundry.
- University of Birmingham
2005 – 2008
- Personal Tutor, Class Demonstrator and Lecturer***
Taught both Nuclear Physics and Chemical Engineering to undergraduate and postgraduate level. Acted as a personal tutor and delivered small group teaching; supervised laboratory sessions, taking responsibility for student safety with radioactive sources; marked group design projects and other reports; and delivered guest lectures to GCSE, A-level and undergraduate students from a wide variety of backgrounds.

Education

- University of Birmingham
2005 – 2009
- PhD in Chemical Engineering and Economics***
My thesis attempted to answer the question of whether [fuel cells for domestic heat and power are 'worth it'](#), using an interdisciplinary mix of engineering, economics, and computer modelling. Market leading fuel cell systems were simulated operating in UK houses to estimate the reductions in CO₂ and energy costs they could achieve. Systems were trialled in the laboratory and a local house, and compared with international field trials and results from the simulations.
- In parallel, an economic analysis of these systems revealed the rate at which prices are falling and the bottom-line price that could be realistically achieved. Combining these, the first estimates for payback times and carbon costs of this technology were produced, which helped to inform the UK government's consultation on feed-in tariffs for UK microgeneration.
- Several industrial and academic collaborations broadened the horizons of this work:
- A three month placement at Fuel Cells Scotland, constructing a solid oxide fuel cell stack and writing control and monitoring software for a testing station;
 - Developing a model of the UK electricity grid for Oswald Consulting, used to estimate the time variation of marginal CO₂ emissions and the impact of renewable generation;
 - Leading a co-authored review of microgeneration technologies in the UK with over a dozen leading academics; focussing on engine based CHP and heat pumps.

- 2004 – 2005 **MSc with Distinction in the Physics and Technology of Nuclear Reactors**
Completed a 1 year taught masters with industrial partnership. The course consisted of safety training and working with radioactive sources; courses on reactor kinetics, nuclear electronics and financial appraisal; and a dissertation on "[The Economic Potential of Future Nuclear Build](#)".
- 2001 – 2004 **BSc (Hons), 1st class in Physics**
Awarded the Moreton prize for distinguished achievement in recognition of graduating first in a class of 120 students.
- 1994 – 2001 **4 GCE 'A' Levels, Grade A:** Physics; Chemistry; Mathematics; Further Mathematics.

Skills

- **Motivation:** Capable of the sustained and independent personal motivation required to complete projects with limited guidance and freedom of design.
- **Team Work:** Willing to engage in group projects where possible, for example volunteering to collaborate with a team of academics from across the UK on microgeneration research.
- **Communication:** High level of written English required for authoring user manuals, academic papers and corporate reports. Teaching has developed my personal communication, confidence when leading discussions, and ability to produce informative and attractive presentations.
- **IT:** Familiar with Microsoft and Linux/Unix based operating systems, office suites, common image, file management and network applications, and scientific analysis packages such as Matlab.
- **Programming:** Several years experience in writing numerical and data driven applications using C, C++, FORTRAN and PHP with database interconnectivity. Also familiar with G (Labview), M (Matlab), VB, Java, and cross-platform GUI programming. Able to design websites using HTML, JS, CSS and AJAX.
- **Practical:** Experienced in practical laboratory work, designing and conducting robust experimental investigations and building custom equipment and electronics, particularly for data logging. Trained to work with radioactive sources, and in microbiological laboratories up to category 2.
- **Other:** Speak and read Russian to elementary level. Completed basic emergency first-aid training.

Selected Publications

- I. Staffell. 2011. *Results from the Microcab Hydrogen Fuel Cell Fleet Demonstration at the University of Birmingham*. I.J. Electric and Hybrid Vehicles, (in press)
- I. Staffell, J. Barton, R. Blanchard, F. Hill, C. Jardine, D. Brett, et al. 2010. [UK Microgeneration. Part II: Technology Overviews](#). Proceedings of the ICE – Energy, 163(4), 143-165.
- A. Hawkes, N. Bergman, C. Jardine, I. Staffell, D. Brett and N. Brandon. 2010. A change of scale? Prospects for distributed energy production. Chapter 8 in P. Ekins, J. Skea and M. Winskel (eds.) [Energy 2050: the transition to a secure low carbon energy system for the UK](#). 2010, Earthscan, London. ISBN 9781849710848.
- I. Staffell, A. Ingram. [Life cycle assessment of an alkaline fuel cell CHP system](#). I.J. Hydrogen Energy, 2010, 35(6), 2491-2505
- A. Hawkes, I. Staffell, D. Brett, N. Brandon. [Fuel cells for micro-combined heat and power generation](#). Energy Environ. Sci., 2009, 2, 729-744.
- I. Staffell, R. Green. [Estimating future prices for stationary fuel cells with empirically derived experience curves](#). I.J. Hydrogen Energy, 2009, 34(14) 5617-5628.

Outside Interests

Throughout school and university I have volunteered with projects in environmental conservation and animal welfare, undertaking regeneration work in my local area, and cat-sitting for elderly people when they needed hospital care. I chaired the Young Socialists Students Society for a year, writing articles for their newspaper about welfare problems within my university and social outreach projects in central London.

I have particularly enjoyed the opportunity to travel around Europe and Russia in recent years. The contrasts with English lifestyle, attitudes and culture interest me, and I hope to eventually broaden my travels to South America and the Far East.

References

Available on request.